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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR		ATTORNEY DOCKET NO.
08/977,221	11/24/97	STRACKE	M	2026-4149US3

HM12/0831

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EXAMINER	
LONGTON, E	

ART UNIT	PAPER NUMBER
1653	12

DATE MAILED: 08/31/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 08/977,221	Applicant(s) Stracke et al.
	Examiner Enrique D. Longton	Group Art Unit 1653

☒ Responsive to communication(s) filed on *6/14/99 and 7/14/99* .

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *3-6, 9, 11, 12, and 16-19* is/are pending in the application.

Of the above, claim(s) *9* is/are withdrawn from consideration.

☒ Claim(s) *16* is/are allowed.

☒ Claim(s) *3, 5, 11, 12, and 17-19* is/are rejected.

☒ Claim(s) *4 and 6* is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____ .

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____ .

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). *9*

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

The Group and/or Art Unit location of your application in the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 1653.

Status of the Claims

Claims 3-6, 9, 11, 12 and 16-19 are pending. Claim 9 has been withdrawn from further consideration by the Examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Response to Arguments

Information Disclosure Statement

Receipt is acknowledged of the information disclosure statement filed with Applicants' response on June 14, 1999. A signed and initialed copy of Applicants' form PTO-1449 is attached.

Objections to the Specification

The objections to the specification regarding the insertion of SEQ ID NOs into pages 38 and 39 and in the description of figure 18 is withdrawn in view of Applicants' amendments to the specification.

The Rejection of Claims under 35 USC 112, First Paragraph

The rejection of claim 16 under 35 USC 112, first paragraph is withdrawn in view of Applicants' amendment of the claim.

Claims 3, 5, 11, 12, 17, 18 and 19 stand rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a naturally-occurring human autotaxin from melanoma cells and peptides derived therefrom, does not reasonably provide enablement for any autotaxin from any source, mutant, species homologue or variant thereof. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

In response, Applicants argue that autotaxin from sources other than human melanoma cells have been disclosed. Specifically, Applicants direct Examiner's attention to SEQ ID NOs:34, 36, 38, 67 and 69. Applicants indicate that these sequences represent autotaxin sequences derived from sources including human melanoma, teratocarcinoma and normal human liver cells. Applicants argue that the genus of autotaxin sequences is therefore enabled by the disclosure of a representative number of sequences.

Examiner agrees that Applicants are enabled for the sequences identified by SEQ ID NO from human melanoma, teratocarcinoma and normal human liver cells. Examiner does not agree that the genus is enabled or that a representative number of members of the genus has been disclosed. The claims, as written, encompass mutants, species homologs and allelic variants of autotaxin but no guidance has been presented in the specification such that a person having

ordinary skill in the art would know what these sequences are. No link has been provided between the disclosed autotaxins, and any other protein, or mutant or variant thereof having cell motility activity or even what threshold level of cell motility activity is measurable or required. The state of the prior art as it relates to the prediction of protein structure/function relationships and protein purification is such that correlations between structure and function are *a priori* highly unpredictable. Given this lack of predictability and the breadth of the claims, it would require undue experimentation for a person having ordinary skill in the art to be able to practice the claimed invention in a manner reasonably correlated with the scope of the claims. Therefore, the rejection is maintained.

The Rejection of Claims under 35 USC 112 Second Paragraph

The rejection of claims 3, 5, 16 and 17 under 35 USC 112 second paragraph is withdrawn in view of Applicants' amendment of the claims.

The Rejection of Claims under 35 USC 102

The rejections of claims 3, 4, 16 and 18 under 35 USC 102 are withdrawn in view of Applicants' amendments of the claims.

The Rejection of Claims under 35 USC 103

The rejection of claims 5, 6 and 17 under 35 USC 103 is withdrawn in view of Applicants' amendments of the claims.

The Rejection of Claims under Double Patenting

The double patenting rejection of claims 3-6, 11, 12 and 16-19 is withdrawn in view of Applicants' filing of a terminal disclaimer over US Patent 5,449,753.

New Grounds of Rejection

Objections to the Specification

The incorporation of essential material in the specification by reference to a foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. See *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); and *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973).

The attempt to incorporate subject matter into this application by reference to the cell motility assays of Stracke *et al.* (1987) and Stracke *et al.* (1989) (see page 20 of the specification)

is improper because the cell motility assay constitutes essential material necessary for the practice of the instant invention. Applicants have amended certain claims to include the limitation that the proteins and peptides of the invention possess cell motility activity. The ability to assess whether or not a particular protein or peptide has cell motility is therefore essential to the practice of the claimed invention but the assay has only been described in general terms in the specification and incorporated by reference to the two publications listed above. Amendment of the specification to recite the steps necessary to conduct the cell motility assay is therefore required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. § 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 3, 5 and 17-19 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 3, 5 and 17-19 are directed to isolated autotaxin polypeptides, or fragments thereof having at least 5 amino acids, wherein said polypeptides or fragments have cell motility activity. The specification, on pages 11 and 12, lists 27 peptides of autotaxin obtained by enzymatic cleavage of the intact protein but no indication has been made indicating which, if any, of these

peptides possess cell motility activity or even what degree of cell motility activity they possess. No correlation between the structure of the autotaxin protein and cell motility activity has been made and no link has been made between a single peptide fragment of autotaxin and cell motility. Applicants claim the entire genus of autotaxin proteins or fragments thereof having cell motility activity but the skilled artisan would not recognize that Applicants, at the time of filing, had possession of the claimed invention. This is because a representative number of species has not been disclosed. While Applicants disclose an assay for the determination of cell motility, no example has been given of a single fragment of autotaxin having at least 5 amino acids which also has cell motility activity. The claims read also on species homologs of the disclosed sequences as well as, allelic variants and mutants of the disclosed autotaxins obtained from any source but autotaxins from only three sources have been described. The predictability associated with structure-function correlations is related to the degree of information available and the number of specific examples that have been disclosed. In the instant case, Applicants have disclosed full-length autotaxins from three sources, human melanoma, teratocarcinoma and normal human liver cells, and Applicants have listed 27 peptides which were "used as the basis for identifying and sequencing the cDNA clone for ATX" (page 11). While the full length autotaxins possess cell motility activity, the specification does not identify which of the peptides possess this activity or what portions of the full length autotaxins are responsible for cell motility activity. No species homologs of autotaxin have been identified and the specification does not teach which amino acids in the full length sequences can be altered, deleted or substituted such that cell motility

activity is retained. Therefore, without more, the skilled artisan would not recognize that Applicants had possession of the claimed invention at the time of filing.

Claims 4 and 6 are objected to as being dependent upon rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

Claim 16 is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Inquiries

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Enrique D. Longton whose telephone number is (703) 305-4062. The Examiner can normally be reached from 7:45 a.m. to 4:15 p.m. on weekdays. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Bradley L. Sisson, can be reached at (703) 308-3978. Papers related to this application may be submitted to Technology Center 1600 by facsimile transmission. Papers should be faxed to Technology Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Fax Center number is (703) 308-4242. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Enrique D. Longton, Ph.D.
August 27, 1999

B. L. Sisson

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8/30/99